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SMALL FRUIT CULTURE  
FOR  
SOUTH DAKOTA

-oOo-

By

A. L. Ford

Extension Specialist in Horticulture and Entomology

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## SMALL FRUIT CULTURE FOR SOUTH DAKOTA

It can no longer be said that small fruits are not successful in South Dakota. Everywhere in the state people are having remarkable success with the small fruits providing they confine their efforts only to the hardy varieties. It is true that there are some of the small fruits that cannot be recommended for use here, because of their lack of hardiness, but there are plenty of hardy ones from which to choose. In the near future there are almost certain to be more hardy varieties developed by our plant breeders.

Grapes, raspberries, gooseberries, currants and strawberries are successful even in the most extreme climates of the state. It is because of this that it is felt that these excellent fruits should be increased here. There are far too many farms in this locality that are wholly devoid of fruit of any kind. It is the intention of this circular to set forth as plainly as possible recommended practises in small fruit culture, hoping that it will stimulate the raising of these fruits in South Dakota. When properly cared for, no piece of ground of equal size will produce as much food for the family as that which is in small fruits. Furthermore, nine persons out of ten think that the small fruits are the most palatable of all fruits grown.

Since the culture of our small fruits vary so greatly, it will be impossible to take them up as a group. Each will have to be taken up separately. The following pages are intended merely as suggestions for beginners in small fruit growing. These suggestions include the methods used by persons in this locality who are making outstanding successes in this work. It is hoped that they may prove of value, especially to those who are going into small fruit in a small way for the first time.



## STRAWBERRY CULTURE

### VARIETIES FOR SOUTH DAKOTA:

There are two outstanding varieties that are successful in all parts of the state, the Senator Dunlap and the Progressive Everbearing. A number of other varieties are grown with success in the extreme southeastern corner of the state, but these are not safe to recommend for the state as a whole. The above two varieties will give the average family all the berries it can use from the middle of June until frost, so it is felt that a further discussion of other varieties would be useless.

### LOCATION AND PREPARATION OF THE SOIL:

Strawberries will thrive on any soil that will grow a corn crop. They should never be planted on sod-land because of the danger of cutworm and white grub injury. With reference to slope, a north slope is better than one to the south, because the soil will not dry out so quickly during the summer months and the plants are not so subject to injury by late spring frosts.

The soil that is to be planted to strawberries should be manured in the fall with well rotted barnyard manure. This should be plowed under in the fall about six inches deep. In the spring as soon as the ground is in shape it should be thoroughly disced and dragged but not plowed before putting in the plants. Strawberries are very shallow rooted and it is desirable to loosen only the top two or three inches of the soil before planting.

### PLANTING:

Strawberry plants may be purchased from a reliable nursery or taken from a neighboring patch. If one desires to get his plants from the neighbors, care should be taken to get only young plants. Young plants have light colored roots, while the roots of older plants are almost black. In

digging plants, the roots should never be allowed to dry out. As the plants are removed from the ground they should be wrapped in wet sacks and left in this moist condition until planted. Plants which are planted as soon after digging as possible will show less mortality than those which are not put in the ground for several days.

In case one receives strawberry plants from a nursery at a time when it is impossible to plant them because of unfavorable weather conditions, they should be heeled in. Heeling in may be done as follows: A shallow trench is opened with a spade, with the land side slanting somewhat.

The bundles of plants are broken and the plants spread thinly along the land side of the trench. The crowns should be exactly even with the surface. The roots are then covered with earth which should be very firmly tramped down. A trench 20 feet long will nicely accommodate 1,000 plants. The plants may be left heeled in for as long as three weeks without injury. In case freezing weather occurs while the plants are heeled in a light covering of straw will protect them.

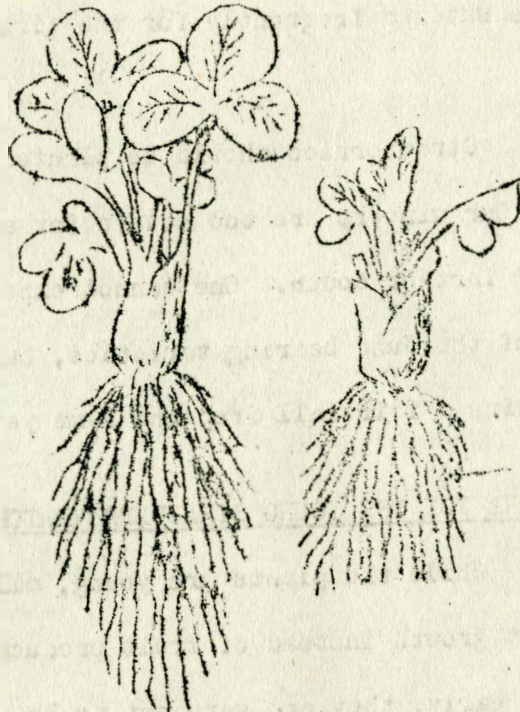
There are a number of different systems of planting strawberries.

The matted row system is the easiest to maintain and renew. It is the system that is best adapted for our conditions. The plants are set in rows four feet apart and the plants about 18 inches apart in the row. The mother plants are allowed to set runners at will until the row is three feet wide, beyond which the runners should not be allowed to go. If this plan is followed, one will have rows three feet wide with a space one foot wide between the rows.

Strawberry plants should be pruned (both root and top) when planted. About one third of the roots should be removed with a pair of shears before setting. (See fig. 1, page 4). The planting can be done best with a spade. First sink the spade in the ground to a depth of six



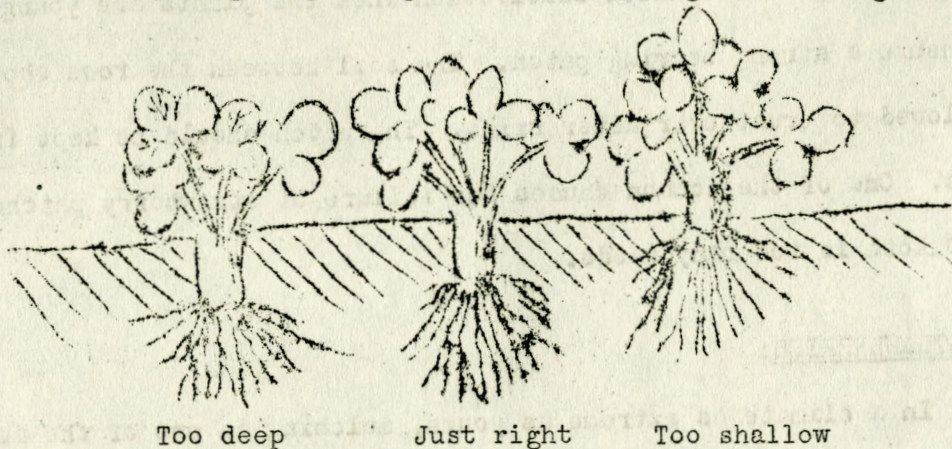
or eight inches. By then pushing the spade forward you have made a hole to receive the plant. Spread the roots out fan-shape before placing in the ground. Plants should be set exactly the same depth as they were before coming out of the ground. This last point is very important (See fig. 2, page 4). It is hardly possible



Before and after trimming previous to planting.

Fig. I

to firm the soil too solidly around the roots. If not firmed tightly many of the plants will not come through. As soon as planted most of the leaves should be pinched off, leaving only the green crown showing above the ground. When



Proper planting depth

Fig. 2

the above practise is followed a greater percentage of the plants will live. Remember that strawberries are very shallow rooted and will dry out easily until the roots have become firmly established. Because of this, the plants should be watered frequently for the first week, especially if the weather is dry.

Strawberries should be planted only in the spring in South Dakota. Our winters are too severe for successful fall planting, which is practised farther south. One cannot expect a crop until the second summer in case of the June bearing varieties, but the everbearing varieties will usually give a fair fall crop the same year they are planted.

#### SUMMER CARE FOR THE YOUNG STRAWBERRY PATCH:

While the plants are young, all nourishment should be diverted into plant growth instead of fruit production. When plants are allowed to fruit too early, they are very apt to be permanently stunted. This danger can be avoided by keeping the blossoms pinched off the plants during the first season. In the case of everbearing berries the blossoms may be allowed to set after the middle of July. This will make a good fall crop possible the first fall.

Thorough but shallow cultivation when the plants are young does much to insure a strong bearing patch. The soil between the rows should not be allowed to crust over after rains. The patch should be kept free from weeds. One of the common causes for failure of strawberry patches in South Dakota is too many weeds.

#### MULCHING STRAWBERRIES:

In a climate as extreme as yours, mulching is one of the most important practises in strawberry culture. To be sure there are some winters during which the plants will come through nicely without a mulch of any sort, but past records show that we are bound to have winters when



the entire bed will be killed out if it is not mulched. Rather than take a chance on the winter, one should always mulch and be on the safe side.

The purpose of the strawberry mulch is not to keep the plants from freezing out. It is rather to keep them from buckling out of the ground during the periods alternate freezes and thaws in late winter and early spring. Because of this the time that the mulch is applied in the fall is very important. Heavy mulches should not be applied until after the ground is frozen tight, the idea being to get the frost into the soil and then keep it there. By mulching heavily early in the fall, one is apt to encourage the very thing he is attempting to prevent. A light mulch early in the fall will prevent any buckling during the period of cold nights and warm days that sometimes occur in late fall.

In selecting materials for mulching strawberries, care should be taken to use materials that are free from weed seeds. The material, if too fine, is apt to smother out the plants. It is a good idea to use an under mulch of coarse material as corn stalks covered by a denser material as straw.

As soon as the plants show growth in the spring the mulch should be removed. If part of the mulch is raked into the spaces between the rows, it can be worked back under the plants after they attain some height. This not only prevents the rapid evaporation, but helps to keep down the weeds and makes a good clean surface for the developing fruit to rest upon.

When the berry patch is troubled with insect pests that nest in or on the leaves or when the leaves become spotted by fungus diseases, it is a good idea to mow the patch after the plants have stopped bearing. After the mowed vegetation has become dry, the patch should be burned over. Burning should be done only when a good breeze is blowing, otherwise some crown injury by the fire is apt to occur.



#### RENEWING THE STRAWBERRY PATCH:

The strawberry patch is not a permanent proposition as many people believe. It is seldom possible to get more than three good crops from the same patch without renewing. Many growers renew their berry patches every two years.

It is a very simple procedure to renew the patch when the matted row system (described above) is used in planting. It is done as follows: After the crop has been picked the rows are narrowed down by throwing a full furrow slice from each side of the row into the vacant space between rows. This will narrow the original three foot row down to less than one foot. The patch should then be dragged to level down the plowed surfaces. This provides for clean, well-tilled ground in which new runners can take root. Where the spring bearing varieties are thus renewed, one seldom can see that the patch has been plowed by fall, the new plants fill the rows so rapidly.

#### RASPBERRY CULTURE

##### VARIETIES FOR SOUTH DAKOTA:

Only the hardy varieties of raspberries should be used in this climate. There are a number of hardy ones that give good yields of high quality fruit. Probably the best among these are the Latham, Sunbeam and Ohta. The last two of these were developed at the South Dakota Experiment Station. Blackberries cannot be successfully grown in this state.

##### LOCATION AND SOIL:

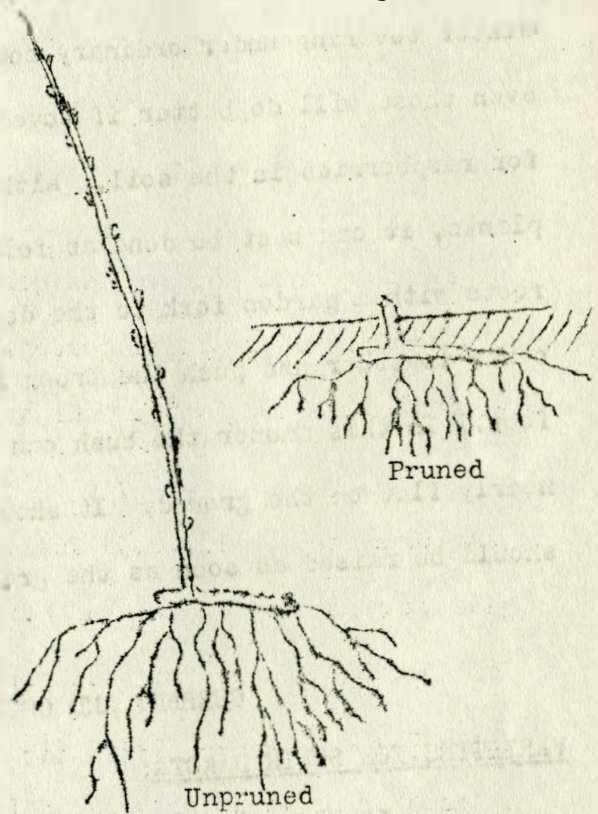
Any good soil is satisfactory for raspberries but the loam soils are best for most of the red varieties. All raspberries thrive best under high cultivation. The land should be heavily manured with barnyard manure, preferably the year before the plants are set out.

### PLANTING:

Although in many localities, raspberries are planted either in the fall or the spring, only the spring planting is recommended for this locality. Where fall planting is practised in a country of severe winters, the mortality is usually high.

In selecting plants it is important that only vigorous plants be used and only from perfectly healthy stock. When ordering from a nursery, deal only with those that you know are reliable. In case one desires to get his plants from a neighboring patch, this patch should be thoroughly examined for diseases and insect pests. Take no chances of introducing these troubles into a new patch.

Raspberry plants are planted in rows about seven feet apart with the plants three feet apart in the rows. Where there is a lack of space, the plants may be crowded closer together providing the soil is in a high state of fertility. The plants should be set in the ground a little deeper than they were when dug. The soil cannot be made too firm about the roots. As soon as they are planted all canes should be cut off at the ground. (Fig. 3, page 8). Not more than two or three shoots should be allowed to grow the first year and these should not be permitted to



Pruning at planting time

Fig. 3

fruit. It is well to thoroughly cultivate for the first season at least. A row or two of garden truck can well be grown between the rows while the plants are young.



### PRUNING:

In the spring, following planting, many shoots will spring from each hill. All but five or six of these should be removed. If all of the shoots are allowed to fruit, the fruit will usually be of poor quality. By throwing all of the nourishment into a few canes, berries of large size and high quality will be grown. The berries are born on the two year old wood and the canes bear but once. Because of this there is no use to retain the canes after they have born a crop. After the crop has been picked, all of the canes that fruited should be removed, cutting them at the crown. This practise should be followed each year as soon as the crop has been picked.

### WINTER PROTECTION:

The three varieties recommended above are all hardy without winter covering under ordinary conditions. In extreme climates, however, even these will do better if covered during the winter. The best covering for raspberries is the soil. Although it is quite a task to cover many plants, it can best be done as follows. Remove the soil at one side of the roots with a garden fork to the depth of about four inches. Gather the canes together and push the crown firmly over into the excavation with the foot. In this manner the bush can be "best in the root" until it lies nearly flat on the ground. It should then be covered with soil. The canes should be raised as soon as the ground is dry and settled in the spring.

## CURRENT AND GOOSEBERRY CULTURE

### VARIETIES FOR SOUTH DAKOTA:

Of the currants for this locality the Perfection, Victoria, Red Dutch and White Grape are probably the best. Carrie and Houghton gooseberries are the leading varieties used in the state, the latter being the better of the two.

### PLANTING AND CARE:

The planting and care of both currants and gooseberries are practically identical. They can be planted in the fall as well as in the spring. When set in the fall it is well to cover the young plants with earth. The plants should be planted about six feet apart both ways to allow for two way cultivation. Both currants and gooseberries do much better with cultivation than without. This is one of the most common mistakes made in their culture. If one does not intend to cultivate them they should be well mulched with ashes, sawdust or similar material. This mulch should not be mixed with the soil, but kept on the surface. Currants and gooseberries of the varieties above recommended do not need winter protection of any kind.

### PRUNING:

Most of the fruit is born on the older wood, very little setting on the wood that has grown the previous season. Each year after the crop has been picked, pruning should be done as follows: All old wood that has become weak in bearing through age should be removed by cutting close to the ground. Not more than four or five shoots from the crown should be allowed to remain. By pruning in this manner each year, the crop will be bettered both in yield and quality. Also, this practise will greatly lengthen the life of the plants.

## GRAPE CULTURE

### VARIETIES FOR SOUTH DAKOTA:

To date there is only one grape that has proven hardy in all parts of the state without covering. This is the Beta. Although it's quality and size are not what many would like to see, it is far better than nothing at all in the grape line. It is an excellent jelly grape however.



The Concord, Lucile and Worden have been successful in the eastern part of the state when covered during the winter months. These varieties should not be tried without covering however.

#### LOCATION AND SOIL:

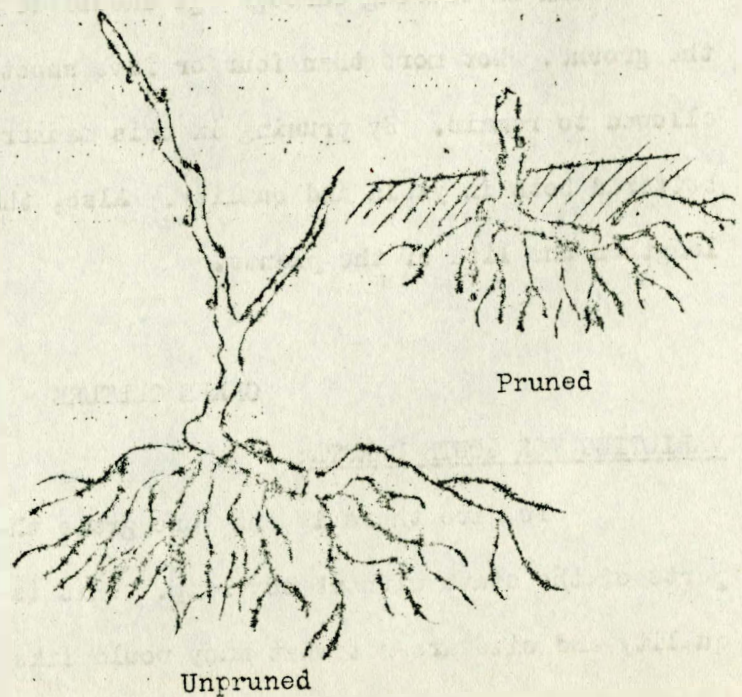
Grapes will do best on gravelly soils, or on sandy loams with open subsoils. One should avoid putting grapes in low, heavy ground where there is a lack of good drainage. Where available, high rolling hill sides make the best location for grapes.

Many of our prairie farms have no such location described above. This should not discourage the person who wants to put in grapes. There are a great many people in the state who are having good success with grapes on level ground.

#### PLANTING:

In ordering plants, better success will be had with young plants than with the older ones. Plants should by all means be not over three years old. The young plants invariably outgrow the older ones.

Grape plants should not be planted closer than eight feet apart along the trellis. In light soils it is important to set the plants deep but they should be covered gradually. The first covering should be to about the depth they were before coming from the nursery row. As the



Pruning grapes at planting time

vines grow, soil should be worked around them until the hole is entirely leveled off. In heavy soils it is not safe to plant deep.

Before planting, all wayward roots should be pruned off. Apparently it does not injure the plants if the roots are shortened even down to twelve inches in length. At planting time the tops should always be cut to two or three buds. (Fig. 4, page 11). Some hoed crop can be planted between the rows the first year. This will not only utilize the ground, but will insure cultivation for the young grapes that they might not otherwise get. After the first year the grapes will take up all of the space.

#### PRUNING AND TRAINING THE GRAPE:

The drugery in the production of the grape is the pruning. It has discouraged many in the growing of this crop mainly because it has not been thoroughly understood. Grapes will grow and bear if the vines are not pruned at all. The purpose of the pruning is merely to get more fruit of number one quality.

One sees many systems of grape pruning in books and bulletins. All of them are good but many of them are too complicated for the average amateur. In pruning grapes there are a number of principals to follow.

(1) Grape wood bears once and never again. (2) The bearing wood is produced from the previous seasons growth. (3) If all of the new wood is left on the vine, it will produce many more clusters than it can properly nourish. (4) If part of the new wood is cut away each year, more and better clusters will be produced on the wood that is left. If these principals are adhered to, it does not matter what system of pruning is used. It is best however, to adapt some one system and stick to it.

Perhaps the most practical system for the average farm vineyard, is what is known as the high renewal system. After the first



season's growth, the canes are cut back close to the ground, leaving only two or three buds. This stub can then be easily mounded with earth for the winter. The next spring the trellis is put up. It consists merely of a row of posts on which two

wires are fastened, one about 20 inches from the ground and the other a foot and a half higher.

When growth starts in the spring a single cane is carried straight up to the bottom wire and tied.

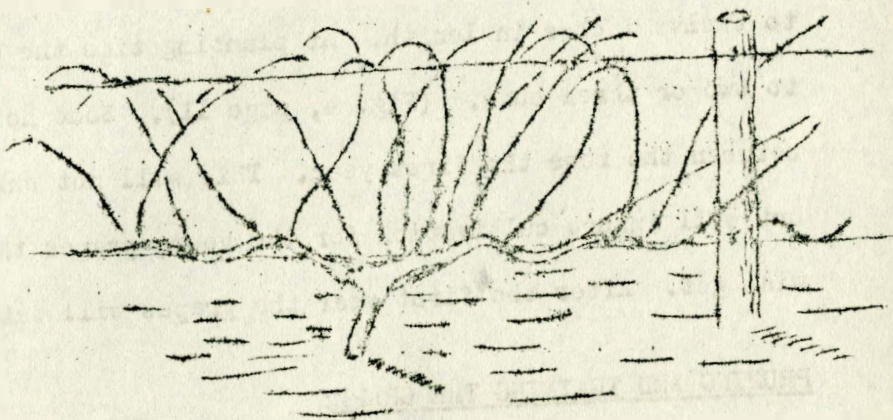
The top is then pinched off to force it to throw out lateral branches.

Only two of these laterals are saved and these trained along the bottom wire in opposite directions.

In the fall these are cut back to the strong well matured wood. The following spring, the fruiting shoots that grow from these two laterals are trained upward on the top wire. (Fig. 5, page 13). At pruning time in the fall,

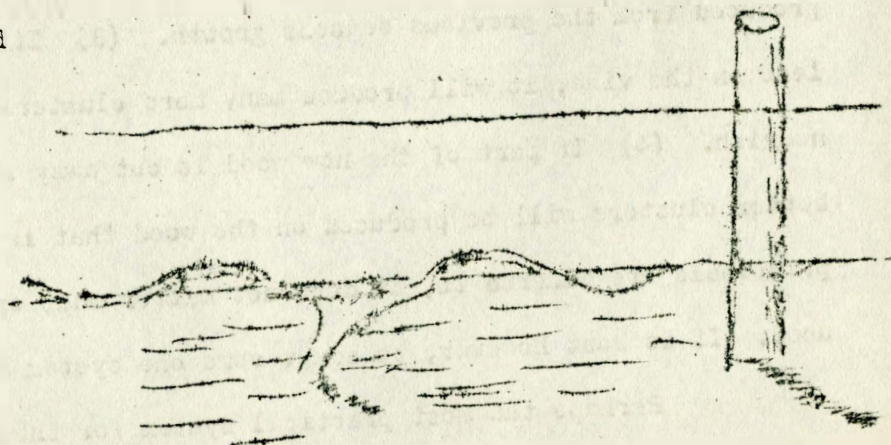
all but two of these upward growing shoots are removed and these cut back to well matured wood. These two canes should be lowered to the bottom wire (Fig 6, page 13). and

the fruiting canes that grow from them



Fruiting canes are tied to the top wire

Fig. 5



After pruning, the two remaining canes are lowered to the bottom wire.

Fig. 6

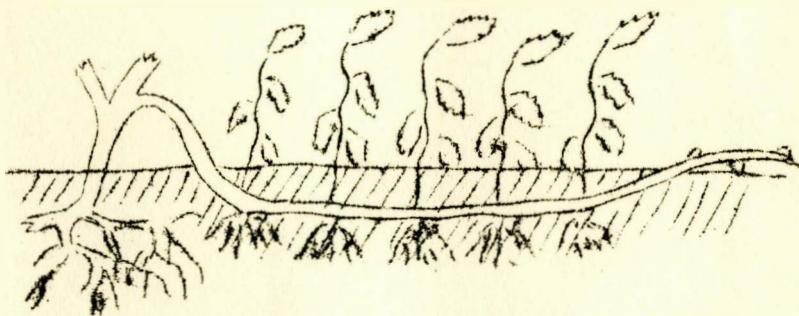
in the spring are trained back onto the top wire. Future pruning merely consists of a repetition of the same thing, in the fall and the spring. Where the varieties that one is working with are very strong growers, four canes may be left each fall instead of two. In this case two canes are trained each way on the bottom wire.

When this system is used, it makes the vines very easily laid down for the winter. After pruning each fall, all that is left is the upright leading to the bottom wire and two laterals, each possibly five or six feet in length.

#### HOME PROPAGATION OF GRAPES:

Grape vines may be increased at home without going to the expense of buying new plants from a nursery. This can be done by layering. Early in the spring a good healthy cane coming from near the base of the vine is laid into a trench about four inches deep. Without being cut from the mother plant this cane is buried, care being taken to leave the terminal two or three buds exposed. If not too dry each bud along this buried cane will root. (Fig 7,

page 14). The following spring the old original cane is cut between roots, resulting in a number of grape plants ready for resetting. An unusually successful vineyard can be extended all over the community in this manner.



New grape plants may be had by layering old vines.

Fig. 7